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Mind Evaluation
for Teaching Purposes.

By

Andrew Thomas Smith.

Thesis for Doctorate of Pedagogy

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SCHOOL OF PEDAGOGY,
UNIVERSITY OF THE CITY OF NEW YORK.

MIND EVALUATION FOR TEACHING PURPOSES.

THESIS FOR THE DOCTORATE IN PEDAGOGY.

BY

ANDREW THOMAS SMITH.

1893.

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MIND EVALUATION FOR TEACHING PURPOSES.

THE time seems past when, in theory at least, a teacher is regarded as equipped for his work without being in possession of such a practical knowledge of psychology as will enable him to make an inventory, more or less complete, of the mental capabilities of his pupils.

Teaching, which embodies the idea of development both in power and in skill, as well as the idea of mental furnishing, seems so far changed that we now teach boys and girls, and not reading, writing, and arithmetic. The latter are now made only a means towards realizing the purpose of the former. The conception of fitness to teach, therefore, demands not only a knowledge of the subjects used, but an equally accurate and extensive knowledge of the child to be taught. Nor will a second-hand knowledge of an "average" of mental capabilities among children, borrowed from a few scientific observers, serve as a substitute for that personal study which has become the duty of every teacher. Added to the fact that averages are very deceiving things, and average human nature not less so than averages in general, is the equally valuable truth that averages change from age to age of childhood, as well as from one age to another of the race. The type which we would realize in the child before us is that which at his best he tends to become—no matter what may be the capabilities of his fellows or the

average of his class.[1] This statement seems warranted by the fact that good teaching is that which enables the best child of the class to do his best at the same time that it gives opportunity to the poorest to do his utmost. This is not a pleasant though unapproachable fiction, but a working model, and it is the failure to appreciate it that causes men to misinterpret the "prearranged, pattern-making work of the school" of Rosenkranz,[2] forcing him thus into a seeming advocacy of absolute sameness in the results of the school. A knowledge of averages may be serviceable as a means of comparing class with class, and even as an aid to better work with individual children; but the teacher's personal study of each child becomes valuable as a means of enabling him to harmonize class instruction which circumstances demand with individual instruction which philosophy approves.

No teaching can be regarded as scientific that does not take into account the individual peculiarities of each child, and strive by some rational means to supply what such peculiarities demand. Nor can any teaching be ultimately successful unless it meets, at least implicitly, such individual needs.

The professional director of physical culture undertakes to prescribe suitable bodily exercises only after subjecting the applicant to the most rigid and exhaustive examination, which unfolds to him the strength and present development of all the parts under consideration as well as a history of the individual's life and parentage—and this, too, in the absence of anything commonly called disease. Can teachers, who have to do with by far the more important element in human nature, afford to neglect an equal scrutiny into the present needs of the child, especially in the light of what physicians have accomplished by their method? The only test now applied is one for determining the amount of actual knowledge of the various subjects in possession of the child; and even this is made without any

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[1] Educational Review, June 1891: "Some Characteristics of a Sound Mind," by Mrs. Sophia Bryant. Taken from the Educational Times, London.

[2] Rosenkranz, Philosophy of Education (D. Appleton & Co., 1886), p. 50.

regard whatever as to the means by which he acquired this knowledge, the prospects of his being able to retain and use it, the effort it cost to get it, or the effect produced upon his life in the getting. Much energy and enthusiasm are spent in urging upon elementary teachers the necessity of studying the child, yet even now few can be found who have more than a vague notion that a certain child is generally strong or generally weak, generally bright or generally dull. And many fail to possess even such intuitive knowledge of the child's general excellencies; the only question with them is, "Has he stored in his mind the prescribed amount of history or geography?" The reason for such a condition of things may lie partly in the fact that recognized educators have done but little toward aiding the general teaching force in making such knowledge exact and serviceable. In their directions they have indulged in glittering generalities and have then with great fervor urged upon teachers the necessity of doing that of which they themselves seem to have but an intangible notion; yet, they insist, it is that for which "every teacher's ingenuity will suggest the means"—and we should almost add, the end.

Objection is urged that to inventory mental power is impracticable and only a fancy, that minds cannot be subjected to quantitative tests as matter can, that the application of a measuring-rod to character is unthinkable; hence the necessity of remaining content with undefined general impressions! But this is to impeach the wisdom of those who have declared that there is a science of mind, and who have, by their own personal efforts, secured for us that measure of exactness we now possess. Francis Galton tells us[1] that "the attempt to measure character, even though its variableness due to free-will be fully recognized, is as rational as to measure intellect or physique, since a stability of 'temperament' is recognized. Moral qualities are no more variable than intellectual, and, perhaps, physical." He used historical evidence first, and found that a child (son) who inherited his father's disposition (essential

[1] Popular Science Monthly, vol. xxv (1884), p. 732: "Experiments in Measuring Character."

character) usually came out as the father did. Next he studied twins, so much alike as to be almost undistinguishable, and found their lives to run in almost exact parallels. He even thinks that the near future of one may be predicted with pretty fair degree of exactness, by taking the other and subjecting it to the circumstances into which the first is sure to be thrown. In the third place, he used introspection, and found that for months the number of perplexing cases in his life that needed definite and determined control was less than one a day. All the rest seemed to lie within the province of normal cause and consequence, and hence were predictable when the person's character is fairly well known. Hidden conditions, due to undeveloped disease or to a sameness of symptoms resulting from a variety of causes, render predictions as to health and physical possibilities equally doubtful, yet we call our physicians and rely upon their diagnoses.

In further illustration of the fact that knowledge of mental conditions can be had, sufficiently accurate to warrant our placing great reliance in it, we refer to Beneke, who has recognized four periods of mental development, differing in the relative strength of different capacities, impulses, etc., and corresponding to different ages in the child's history: "(1) To about the end of the third year, in which the consciousness of self and not-self gradually unfolds, and which is characterized by the predominance of outer sense-life including instinct. (2) To about the end of the seventh year, in which the inner mental activity gradually develops itself to the point of equilibrium with the receptive functions of sense, and which is characterized by the rise of the representative element as seen both in the greater depth of the percepts and in the growing activity of memory and imagination, and also in the gradual displacement of instinctive impulse by conscious design. (3) To about the end of the fourteenth year, in which the inner self-activity becomes free from the bonds of sense and acquires a preponderance, first and chiefly as imaginative activity, then as a tendency to abstract reflection or thought. (4) To the close of school-life, in which the higher mental powers are more

fully developed, and which forms a transition to the period of independent, intellectual, and moral activity." [1]

Somewhat more special in their bearings and yet no less valuable in fact, are the results of experiments by Jos. Jastrow. He tells us that certain acquisitions depend almost entirely on the development of one intellectual centre: many are accomplished best by a union of many centres. But a more striking thought, given with the same degree of assurance, is that "each sense keeps its store of images and its apperceptive grasp quite distinct." [2] In confirmation of this thought we have the testimony of J. Mortimer Granville, who has shown that to receive and register impressions is not the simple process it is usually thought to be, but that it is a compound. We may "take in" and "store up" by different processes. We sometimes listen to a lecture but picture the words and scenes. The method of recalling agrees with the storing process.[3] One sense may take quickly but retain poorly; another *vice versa.*

It is recognized that these are qualitative differences, and that nothing has yet been presented indicative of quantitative differences among pupils. Reference to the results of a period of experimenting, in which the writer took a part, may serve to show quantitative differences of mental strength. Tests for eye-mindedness and ear-mindedness were made upon two classes of children, the first numbering 36 and averaging 15 years of age, the second numbering 31 and averaging 14 years of age. Numerous presentations of letters, figures, nonsense syllables, and words were made to the eye and ear, respectively. Great care was taken to have the two sets of about equal difficulty. After a single presentation the pupils were to write as much as possible of what was seen or heard. Only errors were counted in the returns. In the first class 40 was the smallest number of errors in sight, while 139 was the largest; 60 was the smallest in hearing, while 210 was the largest; 100 was the smallest

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[1] "Teachers' Handbook of Psychology." Jas. Sully (1891), p. 406.

[2] Pop. Sci. Mo., vol. XXXIII (1888), p. 597: "Eye-mindedness and Ear-mindedness."

[3] "The Secret of a Good Memory." J. Mortimer Granville.

total, while 349 was the largest. In the second class 49 was the smallest number of errors in sight, while 160 was the largest; 57 was the smallest in hearing, while 169 was the largest; 116 was the smallest total, while 322 was the largest. Special care was taken to seat children so that all could see and hear perfectly, while great caution and much time were spent in securing the undivided attention of every child. These results need no comment, and yet they represent the upper and lower limits of a class where, in practice, the children are taught by a common method, and presumably as many repetitions of a presentation are given to one member as to another. Does it not suggest the importance, amounting to necessity, of having each teacher know his pupils in a way possible only to him who, as a student of children, is able to determine the lines of strength and the lines of weakness in the child's mental make-up?

Assuming that the above evidence is sufficient to prove the possibility, in two directions at least, of giving comparative expression to the degree of strength of mental power, obtaining relatively, if not absolutely, a quantitative determination—let us inquire into a few of the ends to be reached by such results. Again we turn to the writings of that select few who have given us scientifically accurate statements upon this subject.

Some of the aims are:

1. To show a child's rank among his fellows, and later, whether that rank is kept up.

2. To tell in how far the promise of youth is fulfilled.

3. To determine the degree of keenness of the eye, color-blindness, differences in two eyes, other sense defects.

4. To ascertain with precision the influence of special education as distinguished from natural capacity.

Ultimately we may get some valid grounds for determining the relative merits of such statements as the following: The conclusion arrived at by Francis Galton in his study of twins was, that "a surprisingly small margin seems to be left to the effects of circumstances, education, and 'free will.' There is value, therefore, in defining the capacity of each individual; to forecast what he is good

for; encourage him if unduly timid; and warn from efforts doomed to be wasted." [1]

With him "native capacity" is well nigh the measure of all things, while Jacob Riis says in opposition to this: "In general I am inclined to think . . . that the bugbear of heredity is not nearly so formidable as we have half taught ourselves to think. It is rather a question of getting hold of the child early enough, before the evil influences surrounding him have got a firm grip on him." "Perfectly good children, as good as any on the Avenue, are spoiled every day by the tenement." [2]

5. To ascertain whether or not a faculty develops uniformly.

If not, what is the nature of its progress, and when does it come to a standstill, if at all? [3]

6. To determine the "span of prehension," which clearly affects apprehension, since we can never understand a "thing" until that "thing" has got in us.[4]

7. To learn when the different faculties develop.

8. To get a probable solution to the studies suited to each faculty or cast of mind.[5]

9. To learn whether or not there is a mode of mental association peculiar to each distinct cast of mind.[6]

10. In determining incipient fatigue, to reveal—

(*a*) The length of time during which neatness can be sustained in performing a prolonged task.

(*b*) Effect of fatigue upon "reaction time."

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[1] Fortnightly Review, March 1882: "The Anthropometric Laboratory."

[2] "The Children of the Poor," published by Scribner's Sons.

[3] Lippincott's Magazine, February 1890: "Why do we Measure Mankind?" Francis Galton.

[4] Mind, January 1887: "Prehension," by Joseph Jacobs and Galton and Bain.

[5] Journal Anthropological Institute, vol. xv, p. 338: "Experiments in Testing the Character of School Children." Mrs. Sophia Bryant.

[6] Mind, vol. xiv, p. 230: "Mental Association Investigated by Experiment." Cattell and Bryant.

(*c*) Incidentally, the problems of intermissions, length of school term, etc., would get some sure basis for solution.[1]

11. To know how to classify pupils.

At present they are classified simply on the basis of the amount they know, whereas both health and mental power should be prominent factors in determining such a matter. A child deficient in attainments but strong in mind and body may often be promoted, because he can stand pressure ; while his classmate, equally deficient in attainments, and not possessing good health, must, for his own ultimate good, be kept back, simply because the necessary pressure would soon reduce him to the point of exhaustion, and then all the good attempted would be lost. "Any suitable classification of children must be based on the attainments, the intelligence, and the physical development and brain-power of the children."

12. To know which pupils could most advantageously be brought together.

"Children of opposite (or different) bias of mind and temperament should be brought together. They thus help each other, by the power of imitation inherent in childhood." "Train a child disposed to 'introspection' by sloyd or some other bodily activity."[2]

Prof. Sergi has pointed out very fully that, in his judgment, every practical pedagogist ought to know—

1. That the child is in a certain state of physical and mental development;

2. That there may be arrest or retardation of mental development depending on arrest or retardation of the organs concerned ;

3. That there is an emotional sensibility related to physical sensibility in many ways, and that between emotional and physical sensibility and the mental condition there may be symmetry of development or there may be disproportion;

4. That the intelligence has a value relative to the knowledge which the pupil is to acquire;

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[1] Journal Anthropological Institute, 1888, p. 157 : "Remarks on Replies by Teachers to Questions respecting Mental Fatigue." Francis Galton.

[2] The Growth and Means of Training the Mental Faculty, by Francis Warner, M.D. Macmillan: 1890.

5. That the emotional and physical sensibility is the basis of the moral and practical life, because on this depend the determinations of the will;

6. That it is infinitely more difficult to direct the sentiments than the intellect;

7. That in psychical manifestations the individual variations are great, but greater in what concerns the sentiments and the will than in the case of intellectual powers.

8. The correlation between the cognitive and the emotional faculties, and the variations of this correlation.[1]

Many other matters of equal importance might be suggested, but for the present let these suffice. For our immediate aim one thing of value is to be noted, namely, that, with few exceptions, reference is made to children in general in what precedes; no aid is rendered to the practical teacher, by either the foregoing suggestions or conclusions, that will enable him to find out the state of mind of his pupil at the time he must teach him. True, a standard is suggested with which he may compare him, but how? What each teacher needs is something that will enable him to "place his finger" upon the strong and the weak points in his pupil; then, no matter what the average of that grade may be, he knows where that child needs strengthening. Scientists may point out to us the "Normal" in minds of every grade of advancement,—and wonderful aid will be rendered to teachers when this is accomplished,—but the practical teacher will be aided only by personally finding out where each of his pupils stands, in the light of such standard. It is not enough to know the normal lung capacity and muscular strength for individuals of a given size, but the physical director must know each one's defects, and the normal—not the average of mankind—only enables him to make this discovery. It is equally true with the teachers of childhood.

But there are other specific advantages to be gained by an individual estimate of the children under one's care. Usually chil-

[1] Education, September 1886: "An Anthropological Cabinet for Pedagogical Purposes." Giuseppe Sergi.

dren are unconscious of their defects, and when these are brought to their notice in a proper spirit, great enthusiasm is manifested in their removal. "Know Thyself" may be made to apply, step by step, to the child with just as good results as it may in its entirety to the man. The psychological spirit (not vague psychologizing when something else is in order) may be developed in the teacher by this personal attempt to find out the power of pupils. When this is accomplished, the teacher will recognize a sufficient reason for every question and direction given. Teachers who may now be most successful will only have made explicit that which was before, perhaps, intuitive—they will know the secret of their past success. Promotions can be rationally made by the teacher, the only person who knows the pupil sufficiently well to do it.[1]

Less overpressure will appear upon the well-meaning pupils of our schools, because the facts will be known; and children may be saved from much unnecessary suffering, by having defects reported to parents for treatment in their incipiency. Intellectual and moral injury need not be inflicted upon children through ignorance of their especial needs in this regard.

Numerous other values more or less direct might be pointed out, but any one of the above would be sufficient in itself to warrant the cost.

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[1] "The test for class promotion should be the fact that the child will get more for himself in the advanced grade than he would to review the year's work. It is a serious matter to make a child re-do what he has been a year in doing. A child should not be 'kept back' as a punishment for what he has not done. It should not be determined by the teacher's pride. It should not be influenced by the reputation of the school. A child should be promoted unless there is some good and great reason why he should not be." (Dr. A. E. Winship, in "Journal of Education," December 22, 1892.)

Who can so well know such "good and great reason" as a well-equipped and conscientious teacher?—S.

REMARKS EXPLANATORY OF CHART.

It is believed that the appended chart possesses enough matter for observation to enable teachers who are infused with the spirit it would foster to take note of such defects or merits in pupils as may come under their notice.

Effort has been made to cover the physical, intellectual, emotional, and volitional elements in human nature with a degree of exactness commensurate with the demands made upon practical teachers for such knowledge ; but excessive analysis has been avoided, in the belief that a mass of minutiæ would defeat the very end in view—to give to teachers a working knowledge of each child in his entirety, and still to preserve his unity.

The commonly accepted terminology has been employed wherever possible, subject, however, to the higher aim of presenting definite thought in the absence of fossilized but empty words. Hence many traditional terms of psychologists do not appear, while their thoughts do ; and some terms, not yet become widely popular, have been introduced because they are thought to contain ideas in need of much emphasis.

The primary purpose of the chart is to enable teachers to get such a definite knowledge of the present condition and needs of their pupils as a merchant has of his goods after having taken "account of stock."

It is not intended that the order of parts here presented shall be taken as a necessary sequence. Some points can be filled in at once ; others after direct test ; while still others will demand repeated observations. Indeed, record after but a single observation of such parts as "Disposition," "Imagination," "Attention," etc., might well have its trustworthiness doubted. Some things, such as "Health," "Eye-mindedness," etc., should be sought out at once.

It is believed that during the first two weeks—a shorter time if possible, longer if necessary—a teacher's time cannot be more

profitably spent than in finding out what is here indicated. Let it be remembered, however, that all the matter, not requiring direct test, is to be collected while children are engaged in the regular exercises of the school. Bending one's best energies at the outset to finding out just what a child is, will facilitate all one's later teaching.

Records made at the beginning and near the end of the term will enable the teacher to measure the improvement of the child, and this, together with his acquisitions, will offer a reasonable basis for promotion.

The record of one grade at the end of the term must not be granted to the teacher above as her record for the beginning. Each teacher must make a personal estimate of the pupils at the beginning, and then she stands on independent footing both for successful work and for measuring progress.

Experience has proved that by careful practice great facility is acquired in accurately estimating pupils ; hence the time required at the outset is soon very greatly reduced, and the devices, absolutely imperative at the beginning, are speedily simplified.

In Directions for Use of Chart, words have been employed and questions asked in such a way as to enable teachers not in possession of a theoretical knowledge of psychology to make successful use of it. Believing such practical psychology of itself more valuable than the study of a book alone, the writer still urges upon teachers the importance of both. They are complements of each other, and in this, as in every other activity, really artistic work can be done only in obedience to well-founded theory, and will grow explicit in proportion as such theory is comprehended, both book and doings of the child depending for their interpretation upon one's own introspection.

The chart is not intended to solve the problem of an absolute record of mental power, capable of interpretation throughout all time, nor to fix a universal standard by which any grade name, as First Grammar, Second Grammar, etc., may be understood, but to enable each teacher to make definite comparison of the pupils found in any one grade.

DIRECTIONS FOR USE OF CHART.

NAME.—Record name in full.

AGE.—Years and months are necessary for comparison.

WEIGHT.—In many schools the teacher will need to direct pupils to be weighed at some convenient place and to report.

STATURE.—This each teacher can ascertain with little trouble during the first few days of school.

GRADE.—Use the terms employed in your school.

Grade has no reference to "mark" in class-work.

TEMPERAMENT.

1. *Excitable or Calm?*—Is he easily excited, or stirred and confused; or is he quiet and self-possessed, even amid efforts to disturb or provoke?
2. *Energetic or Dull?*—Without, perhaps, losing his balance of mind as he would if excitable, is he strongly active, usually "on the go," and ever ready to play; or is he slow and of easy disposition, with but little inclination to play?

NATIONALITY.

1. *Father.*—This is not a question of birthplace, but one of parentage. To what nation does the father belong by birth? Get this report from home.
2. *Mother.*—Treat the same as Father.

HEALTH.

1. *General State of.*—Is it "excellent," "good," or "poor"? If "fluctuating," be sure to note the fact.
2. *Ever Sick from Over-study?*—For this, as well as the other divisions of Health, supplement the child's knowledge by a report from the parents.
3. *Any bodily Defects to affect Study?*—Does the child have any defects of eye or ear, any hip or spinal trouble, habitual constipation, heart trouble, etc.? Be careful in testing eyes and ears to test not only the two used together, but test them

singly. (Any bodily defects discovered should be reported to parents at once.)

DISPOSITION.

1. *Sensitive or Indifferent?*—This has to do with pleasures or pains that concern himself alone. How does he rank with his fellows in respect to stimulus which attacks his body? Does he endure, without apparent suffering, what would be painful to another; or is he sensitive in this particular? When placed in circumstances (not bodily) highly pleasurable, or somewhat painful to another, does he show strong feeling of either kind; or is he indifferent?
2. *Careful or Careless?*—This may be indicated by dress, recitations, written work, etc.
3. *Hopeful or Sad?*—Is he inclined to look on the bright side of things and see good, whenever possible, in life; or is he easily disheartened and given to brooding over circumstances?
4. *Sympathetic or Unsympathetic?*—This has to do with his feelings in relation to others. Does he enjoy giving pain to another human being, or to animals; or does he strive to give pleasure to them? If they are in suffering, does he suffer with them; or does he appear not to notice such suffering? If they are in pleasure does he rejoice?
5. *Kind or Unkind?*—When others are not manifesting strong feeling of any kind, does he still treat them with consideration and care; or will he take mean advantages of them and otherwise treat them unkindly? His conversation and recitations will indicate much.
6. *Leader or Follower?*—This may be noted in his play or other dealings with fellow-pupils.
7. *Arrogant or Respectful?*—Does he show a proud and domineering spirit; or is he respectful to equals and to superiors?
8. *Honest or Dishonest?*—In this note especially the little things in recitation, play, etc., and do not wait for matters of grave moral concern.

PERCEPTION.

1. *Color.*

   (*a*) Quick or Slow?—Does he readily select colors you may present to him; or does he show doubt by hesitating and wondering?

   (*b*) Accurate or Inaccurate?—After he has learned a color, does he regularly get that color correct; or is he liable to mistakes and apparently subject to the mood he may be in?

2. *Sound.*—The same subdivisions may be made here that were made in Color, and the same questions will apply.

3. *Form* (Active).—These are the same subdivisions that appear in Color, and the (Active) has to do with his perception of Form by means of sight and active touch combined.

   (Passive).—The same subdivisions as above, but the (Passive) has to do with his perception of Form by means of the eye unaided. (This grows in importance when we think how much in practice the eye through its "acquired perceptions" is substituted for the other senses.)

4. *Sense Impressions.*

   (*a*) Numerous or Few?—This has to do with colors, forms, etc., combined. Bring before him a great variety of things, and, after directing his observation to them for a short time, remove them and have him reproduce what has been observed. Note whether he confines his description to few things with minuteness, or to many things.

   (*b*) Orderly or Disorderly?—Has he simply noted a little here and a little there; or has his observation followed some regular sequence?

   (*c*) Spatial or Logical?—If a sequence is observed, is it one of space-relations or is it one of logical dependence? That is, does he name things in succession; or does he name things as they depend upon each other—a thing and its parts, or things agreeing in color, in form, etc.? In testing for sense impressions, use definite forms constructed

by arrangement of lines, or plain things not containing much suggestion for the imagination.

5. *Apprehension.*

(*a*) Complete or Partial?—Does he attach finished meanings to things presented to him; or is he simply impressed with the fact that it is a "thing," showing little tendency to determine what?

(*b*) Inference Fair or Bold?—Does he note what things really are; or is he likely to make bold and hasty inferences suggested by what he observes, and indicated by "I suppose," "I would take it to be," or "It seems"? Does he tell only what is observed (Fair); or does he tell, as a part of perception, what he thinks about what has really been observed?[1]

(In testing for Apprehension use pictures of human forms or of landscapes, or other things that will be suggestive to his imagination.)

6. *Eye-minded or Ear-minded?*—Tests may be made for this by using figures, letters, words, nonsense syllables, Roman numerals, sentences, etc. These may be arranged in sets for each sense, with an ascending scale of difficulty. Presenting them, one at a time, for as long a time as it takes to say to one's self what is on the card, withdraw and have the child or class by writing reproduce as much as possible. (In the child's writing require him to cover up each time all that has been written.) Note the number of errors for each sense. Again, a series too long to be remembered at one presentation, may be taken and note made of the number of times such a series must be presented to each sense in order to be learned. (In making these tests the different varieties of test should be scattered throughout the series, thus relieving each sense as much as possible.)

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[1] See J. S. Mill's Logic (New York, 1867), p. 384, and W. H. Payne's Contributions to the Science of Education, p. 94.

7. *Motor Aid.*—This may be found by testing his ability to reproduce groups of forms presented to him (1) ready made, (2) having him observe while the teacher makes it, say, on the board, (3) having him accompany the teacher's making with his own motion. Compare errors. Such motion need not be confined to the hands, but account may be taken of the motion in saying sounds he is expected to reproduce in some order. Mark the aid offered "great," "small," or "indifferent."

MEMORY.

I. *Of Words.*

(*a*) Quick or Slow?—Does he commit a selection, either in prose or in verse, with readiness; or is verbatim memorizing a slow and difficult process? Does he readily "pick up" words used by others, but not intentionally taught to him?

(*b*) Accurate or Inaccurate?—When a selection has been properly committed to memory, does he retain it just as learned; or is he likely to substitute words, even such as often destroy the sense? Or, if it is not all held, does he simply leave a blank?

(*c*) Local or Auditory?—When committing any selection, can he learn it best by studying it silently; or by saying it aloud or even having it read by another? Does he remember it by seeing how it looks on the page; or by recalling the way it sounds? (For finding the answer to this last, the teacher will need great caution, and may be compelled to ask the child.)

2. *Of Ideas.*

(*a*) Distinct or Indistinct?—Even though words may be forgotten, does the child have a clear (distinct) idea (perhaps it will not be correct) of what he has learned (this may often occur by his not learning it correctly at first, and will show itself, if distinct, in the readiness with which he strives to make it known); or is it hazy, and so indefin-

able that in the attempt to recall it he must grope about for it, and perhaps not feel sure when he gets it?

(*b*) *Accurate or Inaccurate?*—When a series of ideas has been taught, and he has in some way indicated to you that it has been learned accurately, does he, upon some future attempt to reproduce it, show an equal accuracy of reproduction; or is he liable to omit very necessary portions which to him, seem to make no difference in the whole?

(*c*) Orderly or Disorderly?—In reproducing ideas, does he observe a good logical order, where one exists; or is he just as likely to string ideas together regardless of all order, excepting simply that in which they occur to his consciousness?

3. *Which Sense Best?*—Does he retain, and can he reproduce best, things learned through sight or through hearing, or through touch, or through some combination of the senses? (Be sure not to jump hastily to the conclusion that the sense by which he learns most readily is the one whose products he remembers longest. Remember that the understanding of a thing is not enough without its reproduction.)

IMAGINATION.

1. *Strong or Weak?*—Does he take scenes from reading or history as only so many sentences to be remembered; or does he see the pictures thus presented? When opportunity is given to him to do or to make things at pleasure, does he move aimlessly about; or does he attempt to produce something? Strength of Imagination may be seen in other ways that will attract the notice of every thoughtful teacher.

2. *Receptive or Creative?*—In whatever "picture-making" he does, must he wait for some one to describe scenes to him which he can then picture (Receptive); or does he make scenes of his own invention (Creative)?

3. *Intellectual or Emotional?*—Does he strive in his imaginings for an explanation to things (Intellectual); or does he simply make scenes to luxuriate in and enjoy (Emotional)?

4. *Logical or Illogical?*—In his imaginings, whether intellectual or emotional, does he put things into good, reasonable relations; or does he string together the parts only as they happen to his mind?

ATTENTION.

1. *Habit of.*

(*a*) Strong or Weak?—Does he habitually, in play, recitation, etc., attend to things with strength; or does he show much indifference and consequent heedlessness?

(*b*) Voluntary or Non-voluntary?—Whether his habitual attention be strong or weak, is that which he does give, controlled by his own will (Voluntary); or is it dependent upon the attractiveness of and consequent interest in the thing attended to (Non-Voluntary)?

2. *Power of.*

(*a*) Strong or Weak?—Disregarding now his habitual tendencies, can he give strong and prolonged attention to any study; or is he so constituted that, for some reason, he simply must turn off to something else?

(*b*) Voluntary or Non-Voluntary?—Does he show a power to attend even to things that are disinteresting; or is even his power of close attention dependent upon having things made interesting? (Distinction is made between the Habit of Attention and the Power of Attention, because we want teachers to know what a child does, and then test him to find out what he can do. This will make it possible for them to know what to expect from that child.)

ASSOCIATION.

1. *Strong or Weak?*—Does what is said or done in his presence habitually remind him of something else; or does he simply accept it and lack the suggestion? In his learning do you find that he tries to weld things; or does he accept them as just so many isolated ideas?

2. *Objective, Logical, or Verbal?*—This may require a special test. Select words such as the child uses. Arrange them in classes

as (1) Concrete Common nouns, (2) Abstract nouns, (3) Proper nouns, (4) Verbs, (5) Adjectives, etc. (Subdivisions might be made of these, but it is believed that if this be carried far the very fineness of shades of difference will defeat the teacher in the purpose had in mind.) Offer these words one at a time, and give the children time to write all words suggested to them by the word given, doing the writing as rapidly as possible. Do not direct them what to write, but require them to write all words they can think of just as fast as they think them. The younger the class of children the longer, up to say two minutes, should be the time given to the writing. The oldest pupils of the school may be allowed thirty seconds. This is because the minds of little children act more slowly than the minds of older ones. "Reaction time" for little children is longer than for men. When many trials have been made, at different times so as not to fatigue the class, tabulate the results for each child. Note whether the child runs off from the various kinds of words given him to the names of objects which he will, perhaps, think of in groups such as he has been accustomed to see; or to the logical relatives of whatever has been named (Example—house, church, brick, builder, shelter, mason, carpenter, etc.); or simply to lists of words (Verbal) which you will find to be grouped either,

3. *By Sound or by Sight?*—This you determine by noting whether his words sound alike as you pronounce them (hat, mat, rat, cat, sat, fat, etc.), or look alike without the common element of sound (hat, hate, hit, hot, hut, etc.).

MENTAL GRASP.

1. *Individuals.*

(*a*) Quick or Slow?—Does he readily comprehend the truth embodied in a problem or a sentence, etc.; or is he slow to grasp any individual truth? If quick in some kinds and slow in others, make note of the fact.

(*b*) Permanent or Momentary?—When he grasps a truth, does he seem to comprehend it from that time forth; or must

it be shown him again very soon and even very frequently?

(*c*) Accurate or Inaccurate?—When he shows, perhaps by his impatience at any more reiteration, that he has, or thinks he has, a certain truth, does he, upon making the effort to present it, show that he has grasped only its most obvious parts and missed all the minutiæ; or does he show that he has grasped all of its most hidden elements?

(*d*) Independent or Dependent?—Is he able to take a hidden bit of truth, of a kind previously learned under other conditions, and disclose it for himself, and even take a kind of truth new to him and bring it to light; or must he wait for the explanations of another, even though he shows marked readiness in appreciating the explanations when given?

2. *Generalizations.*—All that has been said of Individuals may be noted here in reference to the child's grasp of generalizations, such as sentences expressive of general truth, rules, algebraic generalizations, etc. This will necessitate also a test of his ability to make generalizations unaided.

Use of Language.

1. *Broad or Narrow?*—Does he use a large vocabulary, compared with his fellows; or is he constantly troubled for words, and giving evidence, by frequent repetitions of words, that his vocabulary is very narrow?
2. *Exact or Inexact?*—Does he associate exact meanings with the words he endeavors to use; or does he attempt words whose meanings, even in the essentials, he has but partially learned?
3. *Plain or Figurative?*—In speech (but, perhaps, better in written composition work) does he combine words so as to express plain, unimaginative meanings; or does he show signs of much mental imagery in the figures of speech attempted?

Will.

1. *Innervation.*

(*a*) Can he so centralize and direct his muscular movements as to accomplish what he undertakes? If he tries, say,

to draw a line from one point to another, can he touch both points; or will he start from one and, after drawing for a time, be compelled to change the angle of his line to reach the second? Does he habitually blunder in his attempts to perform ordinary manual acts about the schoolroom; or does he show skill in this regard? Combining such elements as are indicated above, answer "good," "fair," or "poor," based on an average of results.

(*b*) Does he act with energy? Does he walk, study, play, talk, etc., with force; or are such things done in a listless manner? Answer as in (*a*) above. If habitually energetic in some kinds of activity and listless in others, indicate it.

(*c*) Perseverance.—When he meets with obstacles or even with momentary defeat, does he continue to strive until successful or else completely beaten; or does he give up after a few feeble attempts? Answer as in (*a*) above.

2. *Inhibition.*

(*a*) Bodily Activity.—Any undesirable bodily movements that have become habitual, you may call upon the child to correct. Note whether he shows ability to prevent these acts, or is slavishly subject to them. This same test may be made in other things. For example, require them habitually to spell a written spelling-lesson, pronouncing each word before spelling it, and then suddenly change the exercise, having them pronounce after they spell. Other tests may be thought of, the object being to find the child's power to change habitual acts. Answer as in (*a*) above.

(*b*) Habits of Thought.—Can he control, when urged to it, habits such as jumping hastily to conclusions, imputing to others bad motives for conduct, taking the other side simply for the sake of argument, etc.? Can he follow a line of thought without concrete aids if he has become accustomed to them? Whatever his mode of thought,